

Litchi 2.20 User Guide

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1. Introduction

Litchi 2 is a web-based system to aid in the checking of taxonomic lists for integrity and also to deduce the taxon relationships between taxa in two lists – called a “cross-map”.

2. Accessing the System

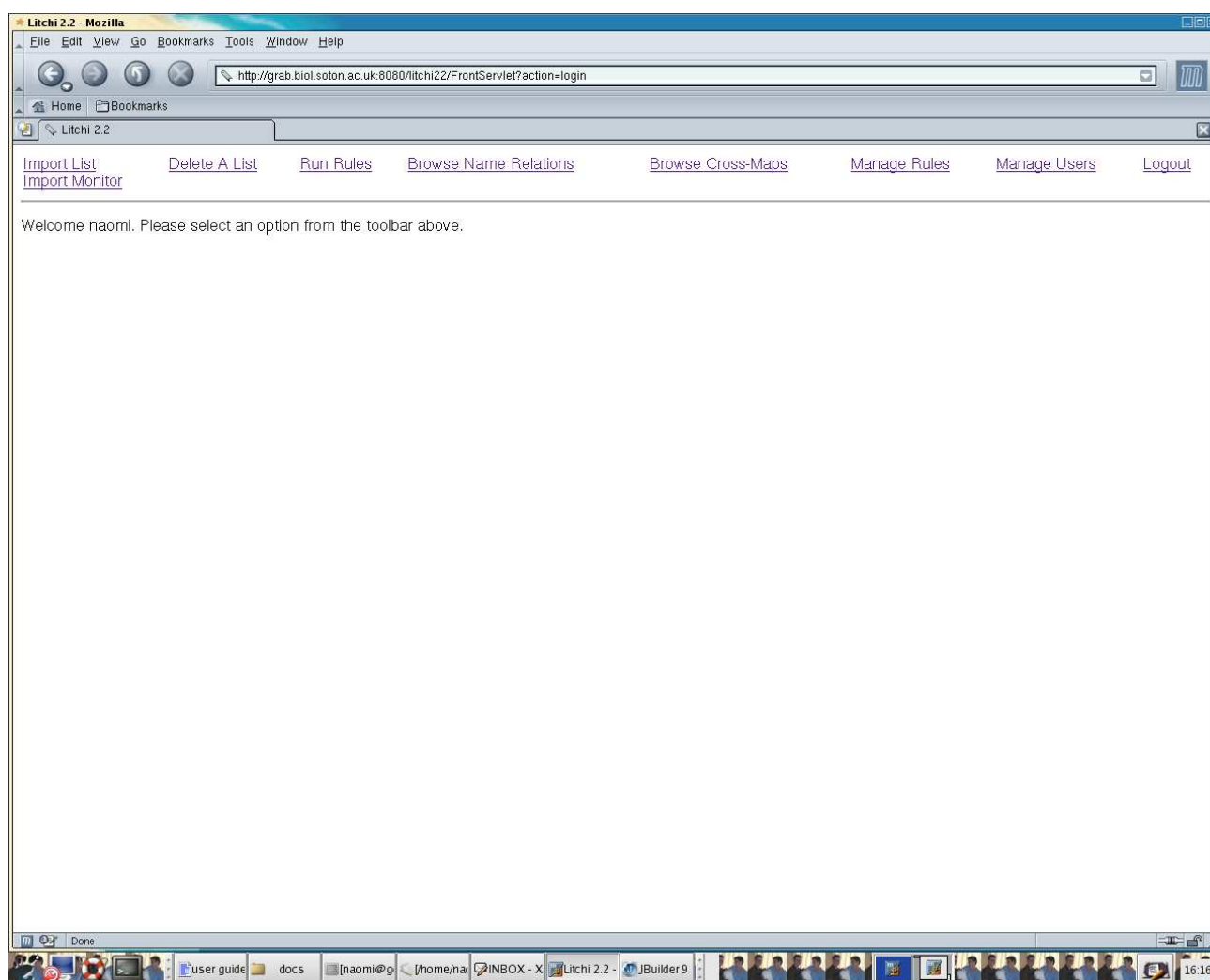
The main Litchi web page can be found at <http://biodiversity.cs.cf.ac.uk/litchi/>

Click on the link to the latest version of the Litchi system (2.20 at the time of writing) and you will be presented with the log-on screen above.

Note: You can also go straight to <http://biodiversity.cs.cf.ac.uk:8080/litchi2/> but this URL is not guaranteed to remain available as it will vary as version numbers and deployment details change.)

To access the system you will need a valid username and password which you should enter and then click the “Login” button (or simply press the “Return” key).

Once you have logged on you will see a tool bar across the top of the screen. It is this tool bar that gives you access to the system’s features.



These features are:

- “Import List”: Import a snapshot of a GSD or regional database (called a "list")
- “Import Monitor”: View the current status of lists that are being or have been imported into Litchi
- “Delete A List”: Delete an existing imported list
- “Run Rules”: Running some rules against one or two lists
- “Browse Name Relations”: Browse the name relations that have been found from previous rule runs and generate a cross-map from them
- “Browse Cross-Maps”: Browse the cross-maps that have already generated
- “Manage Rules”: View the rules in the system (links to delete & upload new rules)
- “Manage Users”: Manage the Litchi users (allows creation, updating & deletion of users)
- “Logout”: Logout of Litchi

Note that the links you can see on the tool bar will be limited by the permission level you have. The possible permission levels are:

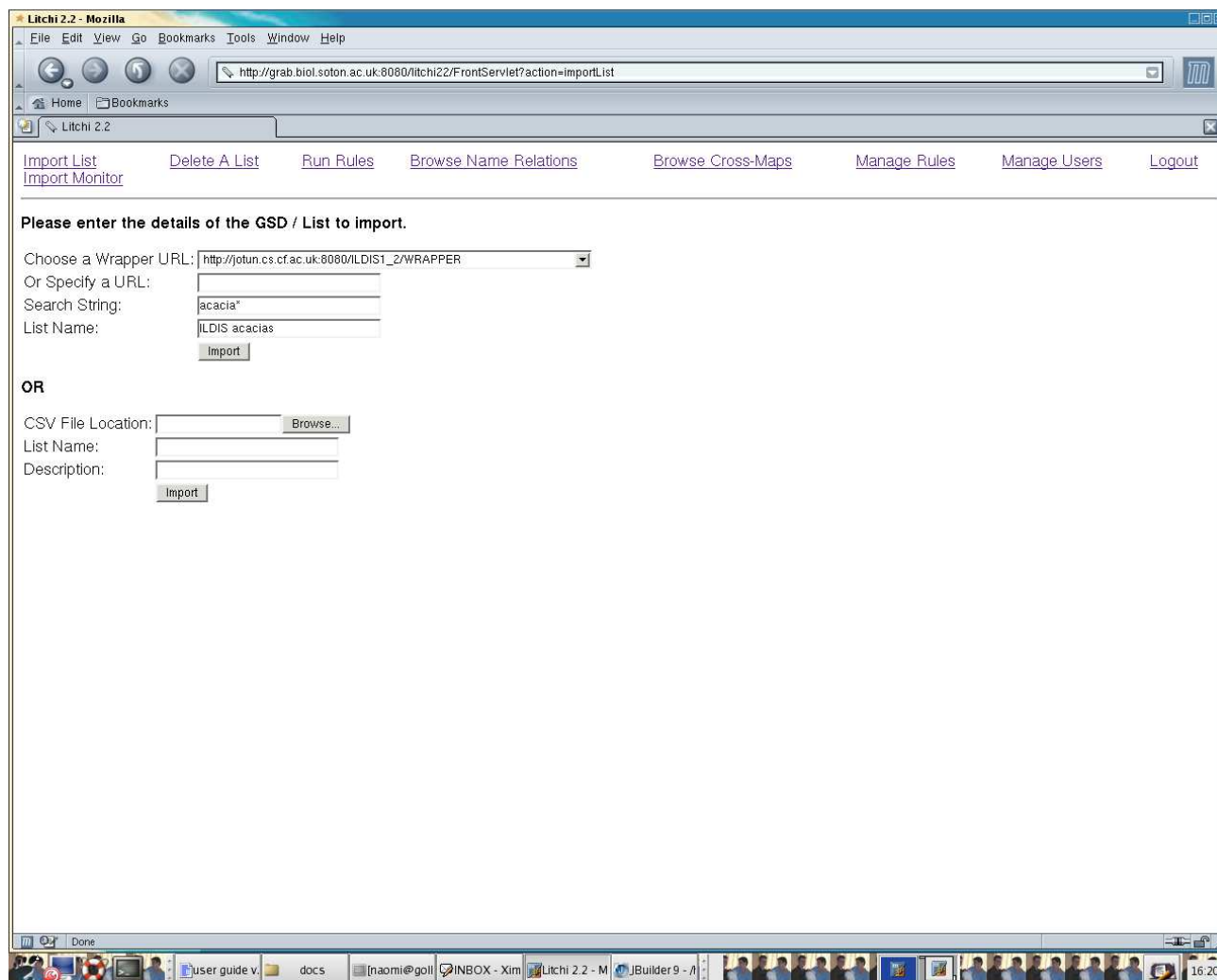
- Read: Read only access to the rules, relations and cross-maps (i.e. they cannot import lists or run rules)
- Write: Read plus the ability to import/delete lists, run rules, generate and edit cross-maps and to delete rule runs
- Rules: Write plus permission to delete and add new rules
- Administrator: Rules plus permission to add, update and delete Litchi users

Therefore, only the highest-level users can see all of the features listed here.

Obviously, before running any rules against a list you need to import a list and upload some rules.

3. Importing a List

To import a list, click on "Import List" on the tool bar. You will then be presented with this page that has two ways to import information into the system.



The first is to connect to a GSD through its wrapper to obtain taxon information that corresponds to the Common Data Model (CDM) 1.2 requests.

The most important part of this is the "URL". If this is not correct then the system will not be able to locate the GSD.

You can either select a URL from the drop down list or enter a new one in the text field "Or Specify a URL". Anything entered into this text field will take priority over the URL selected from the drop down list.

The "Search String" allows you to restrict your search to taxa with certain names. The "*" character is wild - that is, it will match anything. For example, searching for "Acacia*" gives accepted names from other genera that have Acacia names in synonymy. So the search string can be used to restrict the import to a certain genus of interest. The search is not case sensitive – so "Acacia*" is the same as searching for "acacia*".

The second option is to upload a Comma Separated Values (CSV) file containing taxon information in the format:

<genus>,<specific epithet>,<specific authority>,<status>,<infra epithet>,<infra authority>

The infra epithet and authority are optional. There should be no spaces around between the fields and their separating commas. If a field contains a comma then it must be quoted with double quotes. This format is a standard way of exporting data from Excel so it may be easiest to enter the data into the spreadsheet and export it in CSV format.

The taxon should be separated by lines beginning with a dash ("-").

To upload a file you should use the "Browse" button to locate the file in your file system. An optional description can be entered.

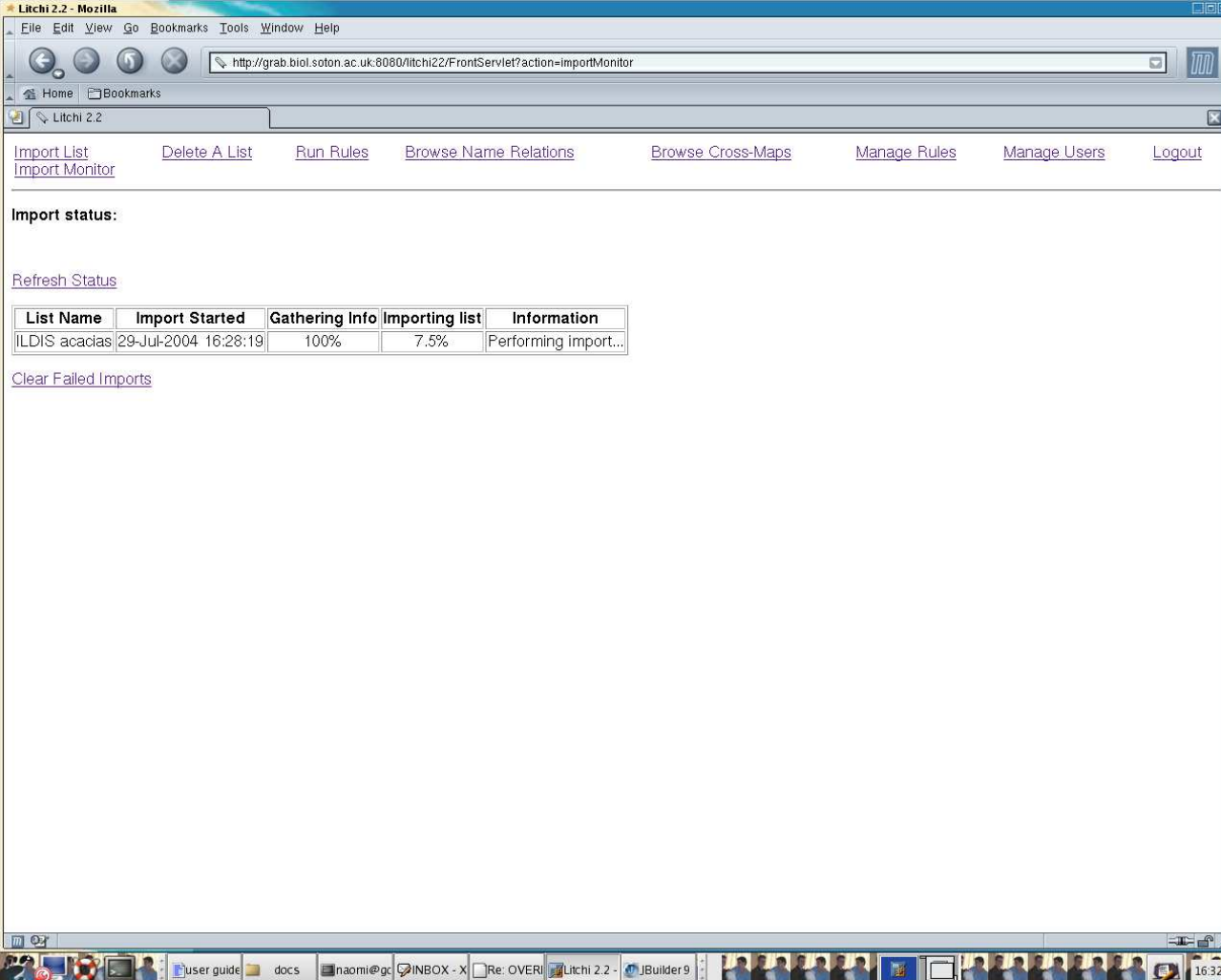
Both of the options require the "List Name" field to be completed; you should enter a uniquely recognisable name for the list.

Once the import has started you will be redirected to the "Import Monitor" screen so that you can see the progress of the import (see next section).

4. Import Monitor

This page allows you to see the status of recent imports. To see the latest status you need to click the “Refresh Status” link.

Note that a list will only be available to the rest of the Litchi system once its import is complete.




The screenshot shows a Mozilla browser window titled "Litchi 2.2 - Mozilla". The address bar displays the URL `http://grab.biol.soton.ac.uk:8080/litchi22/FrontServlet?action=importMonitor`. The browser's menu bar includes File, Edit, View, Go, Bookmarks, Tools, Window, and Help. Below the menu bar is a toolbar with navigation buttons and a Home button. The main content area of the browser shows the Litchi 2.2 web interface. At the top of the interface is a navigation bar with links: [Import List](#), [Delete A List](#), [Run Rules](#), [Browse Name Relations](#), [Browse Cross-Maps](#), [Manage Rules](#), [Manage Users](#), and [Logout](#). Below this bar, the page title is "Import Monitor". The main section is titled "Import status:" and contains a [Refresh Status](#) link. Below the link is a table with the following data:

List Name	Import Started	Gathering Info	Importing list	Information
ILDIS acacias	29-Jul-2004 16:28:19	100%	7.5%	Performing import...

Below the table is a [Clear Failed Imports](#) link. The browser's status bar at the bottom shows the system tray with icons for "user guide", "docs", "naomi@gc", "INBOX - X", "Re: OVER", "Litchi 2.2", and "JBuilder9". The system clock on the right shows the time as 16:32.

5. Deleting a List

This page presents you with a table of the available lists (i.e. only those which have finished being imported) along with the name of the user who imported them and the date and time of import. It is important to note that deleting a list is not reversible and will also delete all results from running the rules and any cross-maps that the list was involved in.



Import List
Import Monitor

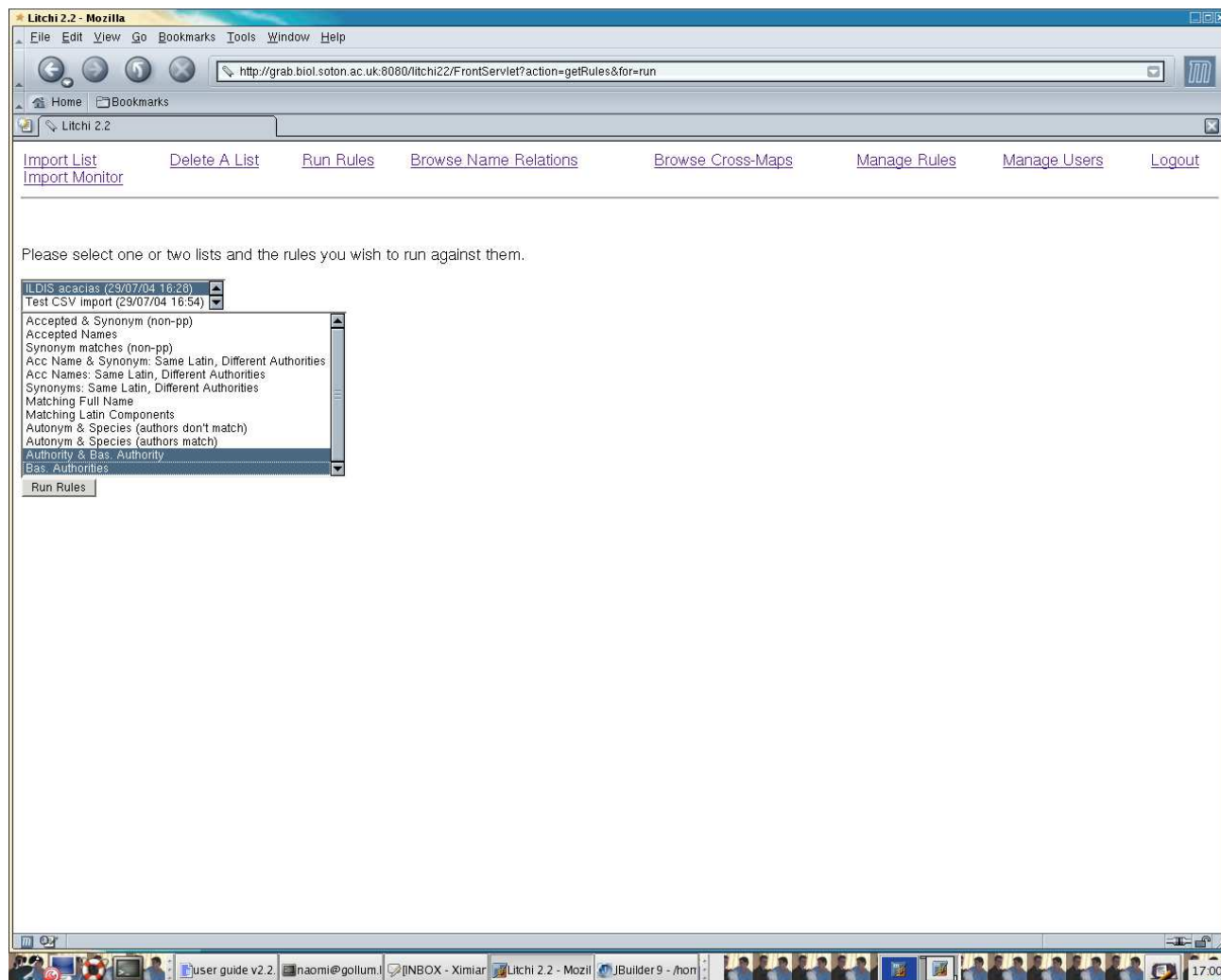
[Delete A List](#) [Run Rules](#) [Browse Name Relations](#) [Browse Cross-Maps](#) [Manage Rules](#) [Manage Users](#) [Logout](#)

Please select the list you wish to permanently delete.

List Name	Imported By	Date Imported	
ILDIS acacias	naomi	29/07/04 16:28	Delete
Test CSV import	naomi	29/07/04 16:54	Delete

6. Running the Rules

Click on the “Run Rules” link in the tool bar. You will be presented with a choice of lists and rules. If no lists or rules could be found then a message will be shown, informing you that you need to import a list or upload some rules.



Select one or two lists and at least one rule and then click the “Run Rules” button. You will then be directed to the “Browse Relations” screen (see next section) to follow the progress of your rule run.

7. Browse Name Relations

You can also get to this page in two ways: either via the “Browse Name Relations” in the tool bar or from running the rules.

You will be presented with a table of all the rule runs – including those which are still in progress - with the most recent run at the top. They are listed by list name(s), time the rules were run, which rules were selected for that run and the status of the run.

The rules selected are displayed in the order in which they have been (or will be) run, which is determined by their priority. The status of the run tells you which rule the run is up to and whether any errors have occurred. You will not be able to browse or delete a rule run until it is complete. Also, you will only be allowed to delete a rule run once it is complete and if you have the required permission level.

Import List Delete A List Run Rules **Browse Name Relations** Browse Cross-Maps Manage Rules Manage Users Logout

Import Monitor

Please select which running of the rules you wish to view.

[Refresh](#)

First List	Second List	Time of Run	Rules Executed (in order)	Run Status		
ILDIS acacias (29/07/04 16:28)	-	29/07/04 17:08	C4 C5 C6	33.3% Complete: Running rule C5		
Test CSV import (29/07/04 16:54)	Another CSV (29/07/04 17:07)	29/07/04 17:07	T1 T4 T10 T9	100% Complete: Rules were run successfully with 12 relationship(s) found.	Browse	Delete
ILDIS acacias (29/07/04 16:28)	Test CSV Import (29/07/04 16:54)	29/07/04 17:05	T1 T4 T10 T9	100% Complete: Rules were run successfully but no relationships were found.	Browse	Delete
Test CSV Import (29/07/04 16:54)	-	29/07/04 17:05	C1 C2 C3 C7 C8	100% Complete: Rules were run successfully but no relationships were found.	Browse	Delete

Import List Delete A List Run Rules Browse Name Relations Browse Cross-Maps Manage Rules Manage Users Logout

[Import Monitor](#)

Please select which running of the rules you wish to view.

[Refresh](#)

First List	Second List	Time of Run	Rules Executed (in order)	Run Status		
CSV authors 1 (29/07/04 17:11)	CSV authors 2 (29/07/04 17:11)	29/07/04 17:11	C1 C2 C3 C4 C5 C6 C7 C8	62.5% Complete: Running rule C6		
ILDIS acacias (29/07/04 16:28)	-	29/07/04 17:08	C4 C5 C6	100% Complete: Rules were run successfully with 39 relationship(s) found.	Browse	Delete
Test CSV import (29/07/04 16:54)	Another CSV (29/07/04 17:07)	29/07/04 17:07	T1 T4 T10 T9	100% Complete: Rules were run successfully with 12 relationship(s) found.	Browse	Delete
ILDIS acacias (29/07/04 16:28)	Test CSV import (29/07/04 16:54)	29/07/04 17:05	T1 T4 T10 T9	100% Complete: Rules were run successfully but no relationships were found.	Browse	Delete
Test CSV import (29/07/04 16:54)	-	29/07/04 17:05	C1 C2 C3 C7 C8	100% Complete: Rules were run successfully but no relationships were found.	Browse	Delete

To see the latest status simply click the “Refresh” link at the top of the page.

Once the run has completed you can view its results by clicking the “Browse” button at the end of the row. You will then be presented with the relationships found. If there were none then an informative message will be shown at the top of the screen. However, if relations were found then they will be displayed in alphabetical order by accepted taxon.

The related taxon pairs are shown side by side with the names that were found by a rule highlighted in red. The class name of the rule that has been broken is displayed to the side of the names.

The figure below shows an example of running the rules between two lists.

CSV authors 1 (29/07/04 17:11)	CSV authors 2 (29/07/04 17:11)
Campanula forsythii Podl. [accepted] C5 (100)	C5 (100) Campanula forsythii (Arcang.) Podlech [accepted]
Chamaecytisus austriacus (Linn.) Link [accepted] C1 (67)	C5 (99) Cytisus austriacus L. [accepted]
Cytisus austriacus Linn. [accepted] C5 (99)	C1 (67) Chamaecytisus austriacus (L.) Link [synonym]
Cytisus pindicola Halácsy [synonym] C6 (102)	C6 (102) Cytisus pindicola Hal. [synonym]
Cytisus smyrnaeus auct., non Boiss. [misapplied]	Cytisus smyrnaeus sensu auct. [misapplied]
Cuscuta arvensis Beyr. ex Engelm. [accepted] C2 (87)	C2 (87) Cuscuta arvensis Beyrich [accepted]
Cytisus fontanesii Ball [accepted] C1 (68)	C1 (70) Chronanthus biflorus (Desf.) Frodin & Heywood [accepted]
Chronanthus biflorus (Desfont.) Frodin & Heyw. [synonym] C1 (70)	C1 (68) Cytisus fontanesii Spach ex Ball [synonym]
Genista biflora (Desfont.) Poir. [synonym] C3 (93)	C3 (93) Genista biflora (Desf.) Poir. [synonym]
Spartium biflorum Desfont. [synonym] C6 (103)	C6 (103) Spartium biflorum Desf. [synonym]
Cytisus multiflorus (L'Her.) Sweet [accepted] C2 (72)	C2 (72) Cytisus multiflorus (L'Her.) Sweet [accepted]
Cytisus albus (Lam.) Link [synonym] C3 (91)	C3 (91) Cytisus albus (Lam.) Link, non Hacq. [synonym]
Cytisus lusitanicus Willkomm [synonym] C3 (92)	C3 (92) Cytisus lusitanicus Willk. [synonym]
Genista alba Lamk. [synonym] C6 (101)	C6 (101) Genista alba Lam. [synonym]

If a taxon is involved in more than one rule break with more than one taxon then the related taxa are listed on the right-hand side. To distinguish which name is related to which other name each relation has its own unique number which is also shown in parentheses after the rule class name, so when a taxon has multiple rule breaks each rule breaking name pair can easily be differentiated.

For two list runs, the default view presented is from that of the first list that was imported into the database. That means any taxon in the first list that is involved in rule breaks – no matter how many – is only listed once on the left-hand side. The related taxa from the second list are listed on the right-hand side, next to the first list taxon. Therefore, taxa from the second list may be listed more than once, depending on how many rule breaks they are involved in.

To reverse this view and have the second list's taxa listed once with their related taxa displayed to the

left, click on the “Reverse View” button. This button will not be present when the relations shown are on a single list.

Two list rule runs will also have a “Cross-Map” button which will allow the generation of a cross-map from those relations (see the next section).

For rule runs on a single list if a taxon conflicts with itself it will be highlighted in yellow so that it can be easily identified as a taxon conflicting with itself and not simply a repeated one. The figure below shows an example of this.

Import List Delete A List Run Rules Browse Name Relations Browse Cross-Maps Manage Rules Manage Users Logout

Import Monitor

Displaying the conflicts for a single list - World CSV (29/07/04 17:15) - run at 29/07/04 17:15.

World CSV (29/07/04 17:15)

<i>Chamaesyce canescens</i> (L.) Prokh. subsp. <i>canescens</i> [accepted]	C7 (105) C8 (107)	C8 (107) <i>Chamaesyce canescens</i> (L.) Prokh. [accepted]
		<i>Tithymalus chamaesyce</i> (L.) Moench [synonym]
		C7 (105) <i>Euphorbia canescens</i> L. [synonym]
		<i>Euphorbia libassii</i> Lojac. [synonym]
		<i>Euphorbia pinnulosa</i> Lojac. [synonym]
		<i>Euphorbia chamaesyce</i> L. [synonym]
<i>Euphorbia amygdaloides</i> L. [accepted]		C7 (106) <i>Euphorbia amygdaloides</i> L. subsp. <i>amygdaloides</i> [accepted]
<i>Tithymalus amygdaloides</i> (L.) Hill [synonym]	C7 (106)	
<i>Euphorbia orjensis</i> Beck. [synonym]		
<i>Euphorbia ligulata</i> Chaub. [synonym]		
<i>Euphorbia sylvatica</i> Jacq. [synonym]		
<i>Euphorbia chakiana</i> Timb.-Lagr. [synonym]		
<i>Euphorbia falcata</i> L. subsp. <i>macrostegia</i> (Bornm.) O.Schwarz [accepted]	C4 (104)	<i>Euphorbia falcata</i> L. subsp. <i>macrostegia</i> (Bornm.) O.Schwarz [accepted]
<i>Euphorbia falcata</i> L. var. <i>macrostegia</i> Bornm. [synonym]		C4 (104) <i>Euphorbia falcata</i> L. var. <i>macrostegia</i> Bornm. [synonym]

8. Producing a Cross-Map

To produce a cross-map you must first run some rules between two lists and then browse those relations. For the cross-map to produce the best results it is recommended that the user run only rules T1, T4, C7 and C8.

Click the “Cross-Map” button at the top of the page and you will be presented with a page of the various factors Litchi uses to calculate the cross-map so that you can alter them as required.

Litchi 2.2 - Mozilla

File Edit View Go Bookmarks Tools Window Help

http://grab.biol.soton.ac.uk:8080/litchi22/xmap_factors.jsp

Home Bookmarks

Litchi 2.2

Import List Delete A List Run Rules Browse Name Relations Browse Cross-Maps Manage Rules Manage Users Logout

Import Monitor

Please enter the values to be used in the generation of the taxon relationships for the cross-map.

The factor to divide by when only the latin components of a name match	2.0
The factor to divide by when the names are connected through an epithet and basionym authority	2.0
The factor to increase the misapplied name relationships by	2.0
The minimum confidence that we will allow for calculations	0.2
The maximum allowed difference between confidences used to calculate higher relationships	0.3

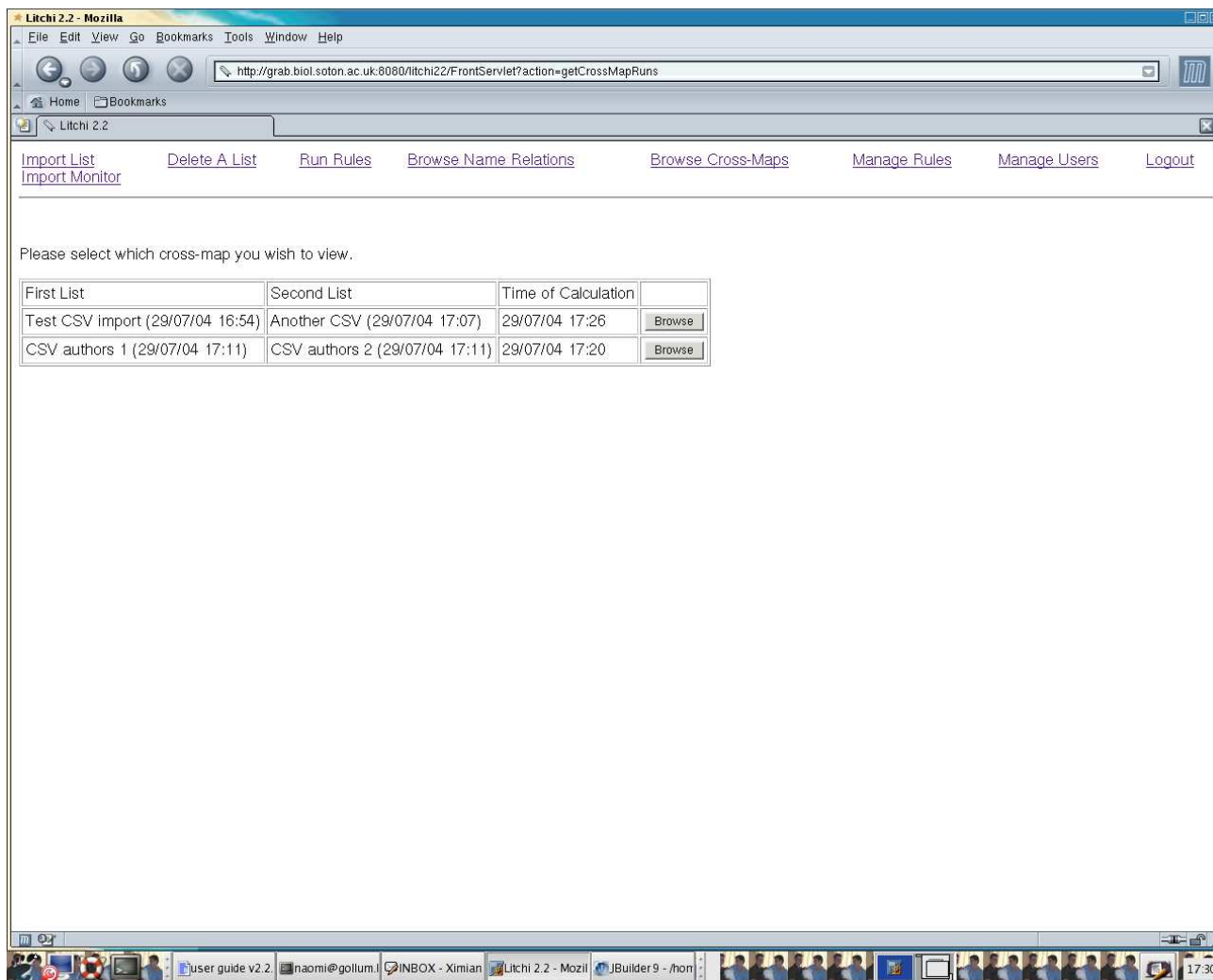
Generate Cross-map

Clicking on the “Generate Cross-map” button will calculate the cross-map from the relationships using the factors you have entered. You will then be presented with the cross-map display which is covered in the “Browsing the Generated Cross-Maps” section.

For more information about the cross-map and how it is calculated see the document “Cross-map Rules”.

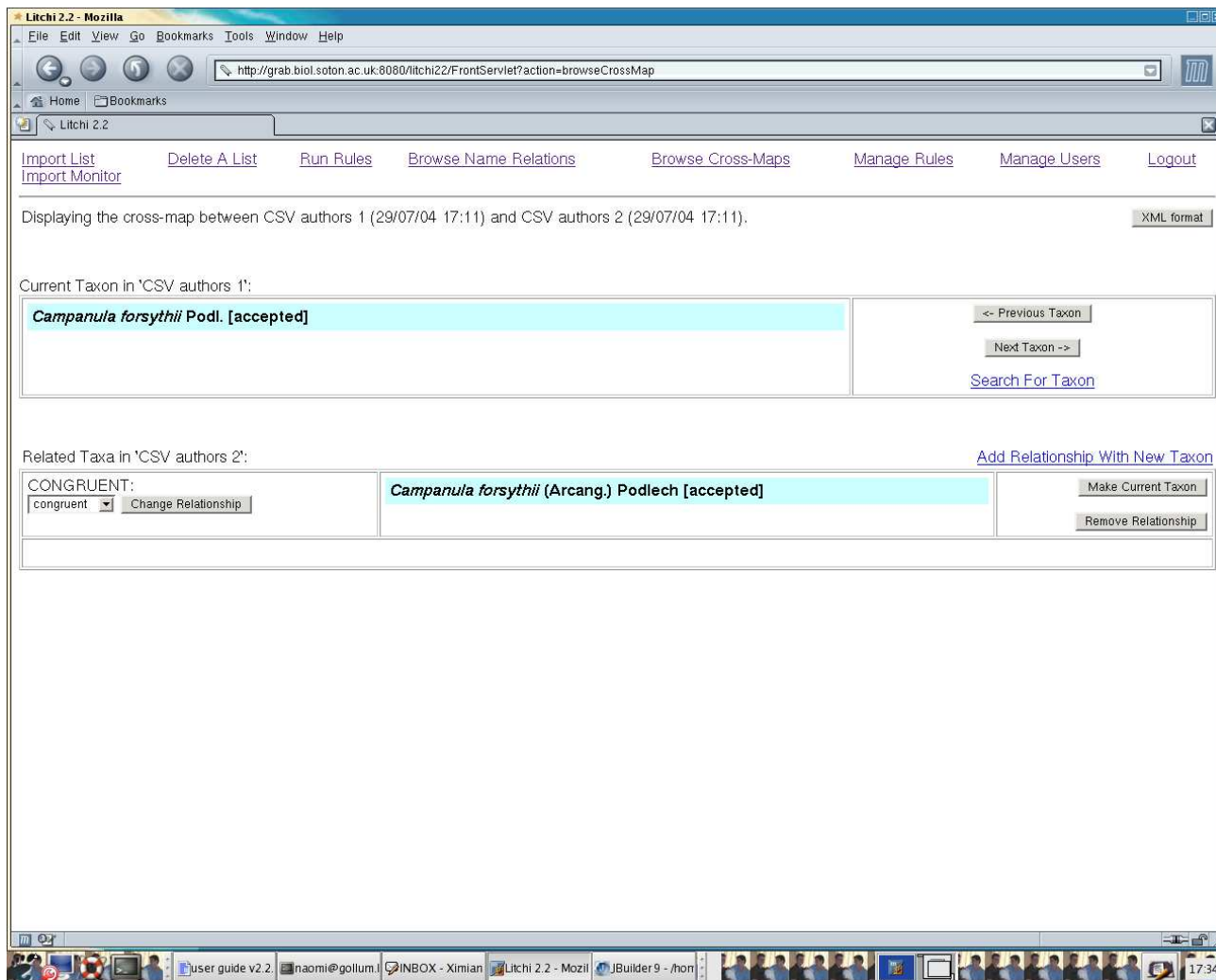
9. Browsing the Generated Cross-Maps

From the tool bar click “Browse Cross-Maps” and you will be presented with a list of cross-maps that have already been generated, as shown in the figure below.



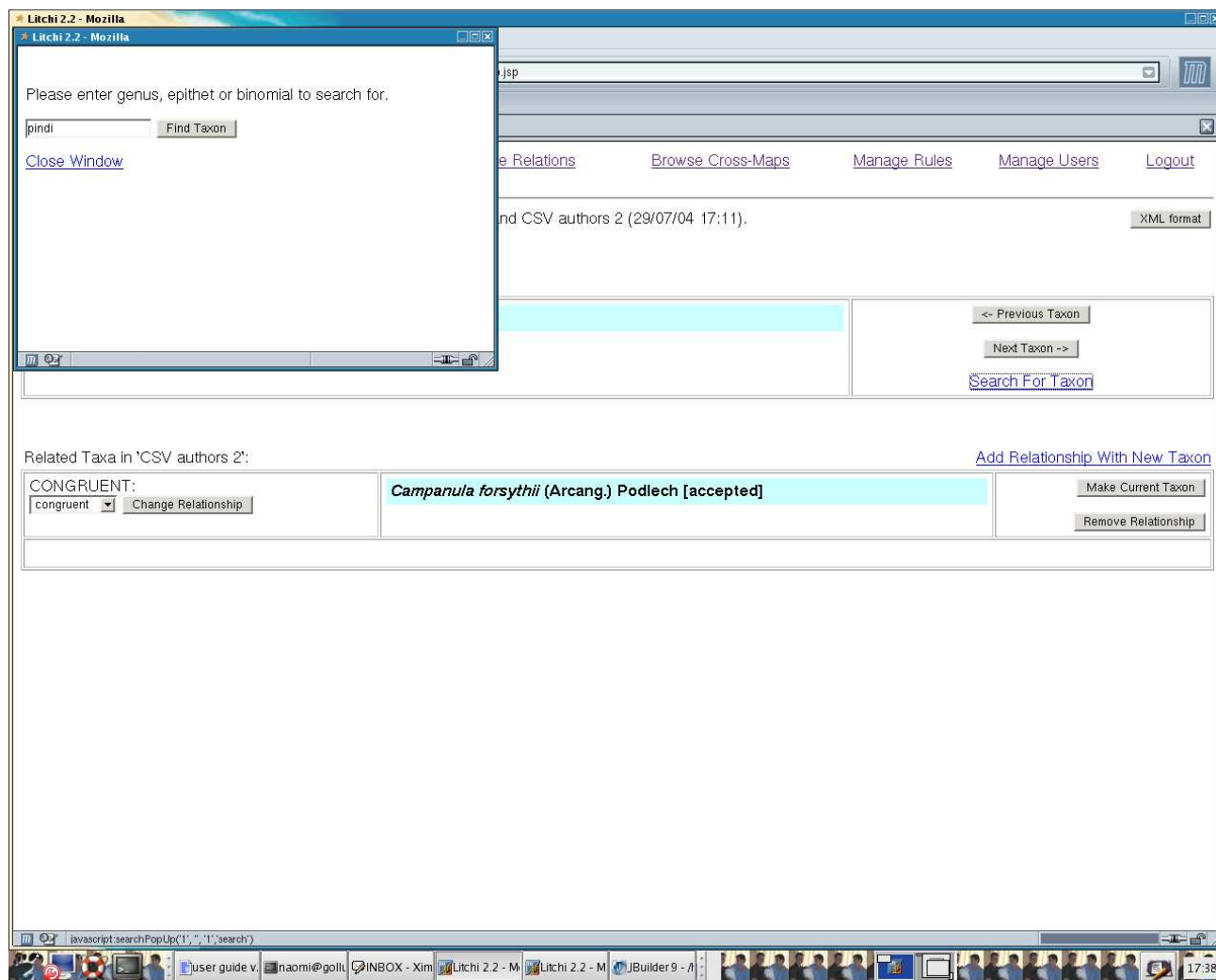
Clicking on the “Browse” button next to the cross-map you wish to view will take you to the screen for that cross-map.

The first taxon (alphabetically) from the first list of the cross-map will be displayed with its related taxa (if there are any) below. From here you can navigate through the first list by using the “Previous Taxon” and “Next Taxon” buttons. You can also search within the list for a particular taxon by clicking on the “Search For Taxon” link.

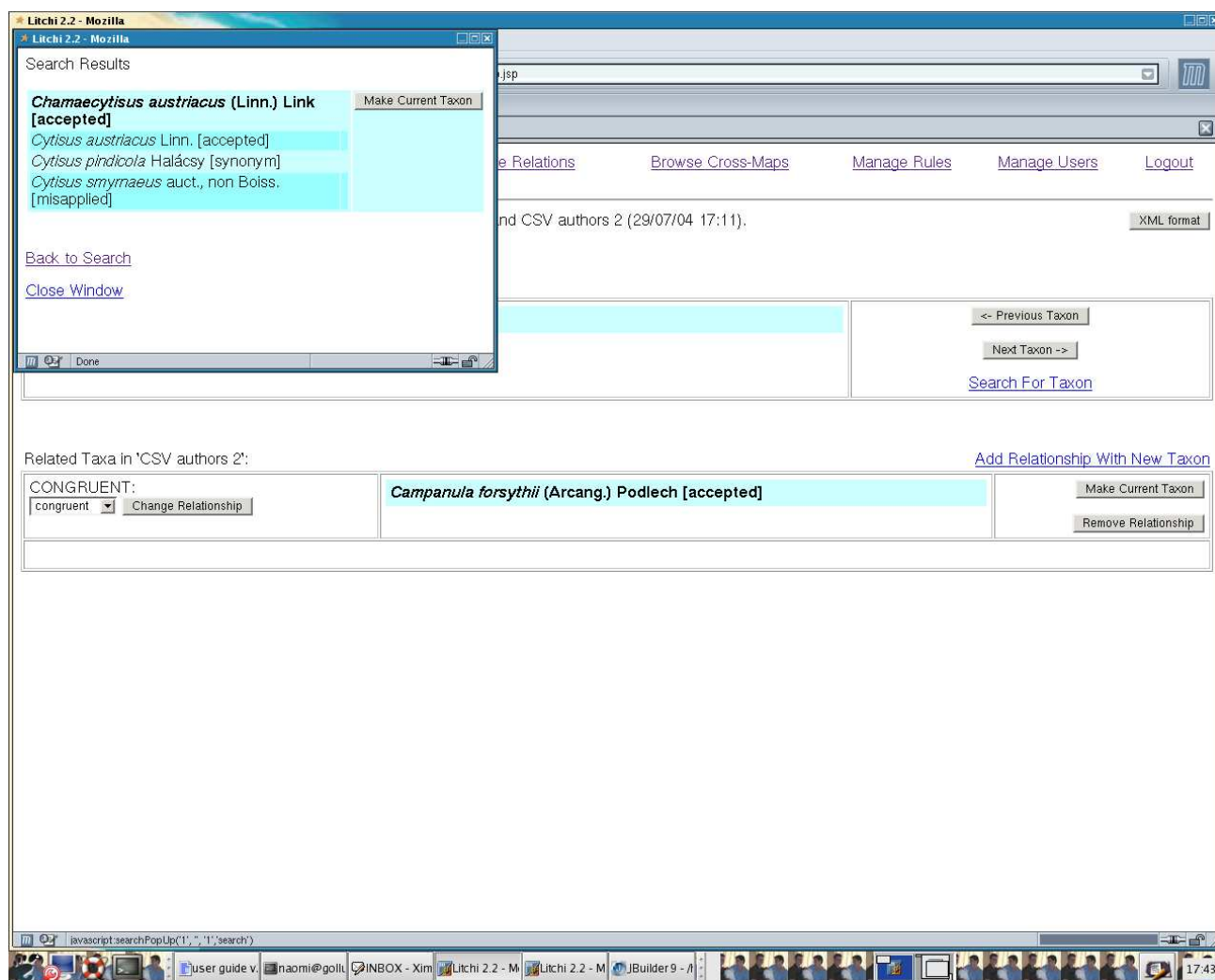


The taxon search link will pop-up a window for you to enter a genus, epithet (specific or infra) or binomial into and then it will display the taxa that matched (if there were any).

This search is not case sensitive and does not require wild cards as it automatically puts them at the start and at the end of your search string. For example, if you were looking for the taxon “*Chamaecytisus austriacus*” you could simply enter “aust” and your taxon would match. However, the fewer letters you enter the more likely it is that there will be multiple matching taxa found.



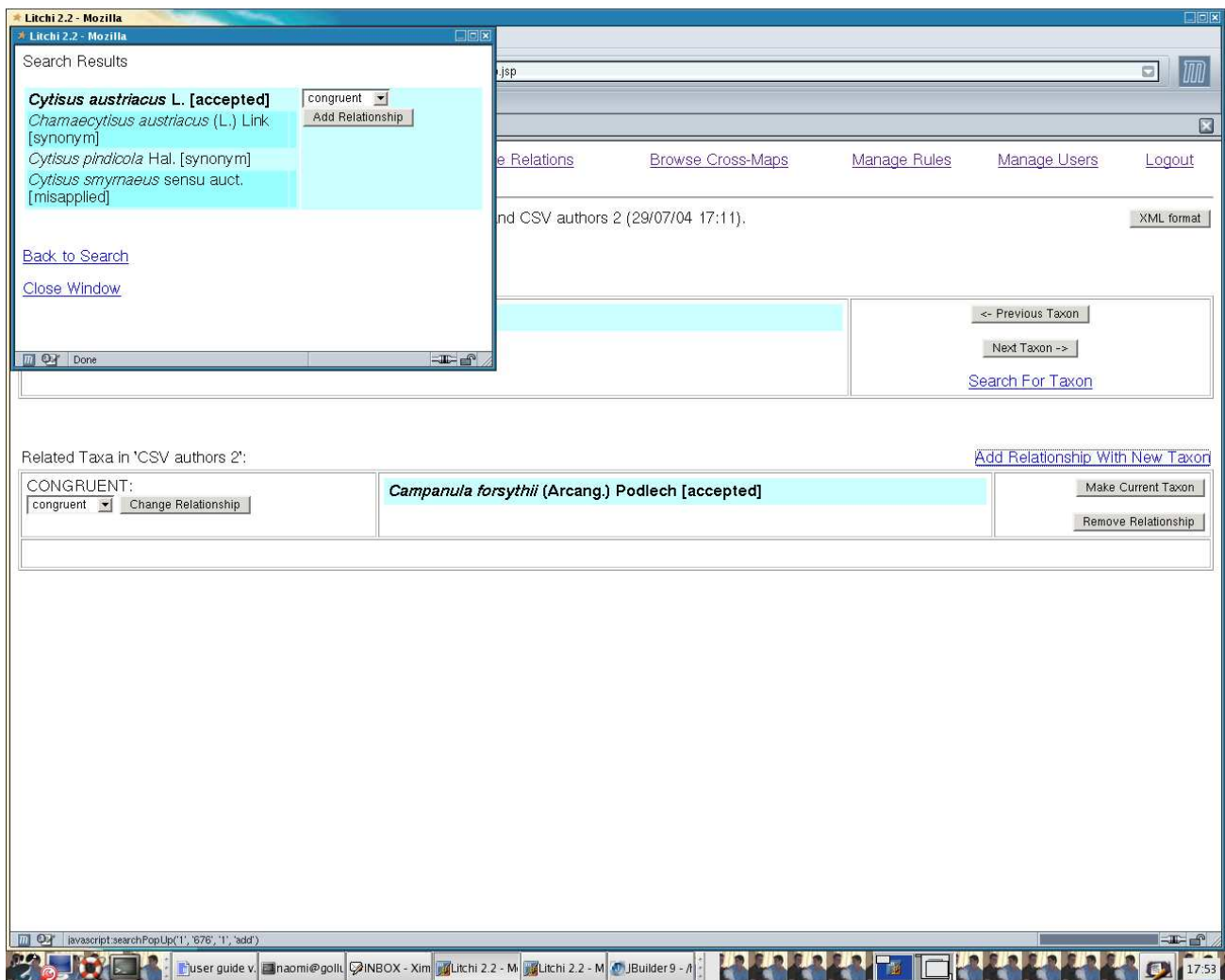
The results of the search will be displayed in the pop-up window and to select one you should click the “Make Current Taxon” button. The pop-up window will disappear and you will be returned to the cross-map display with that taxon at the top and its related taxa below.



To look at the cross-map from the view of the second list you should click on the “Make Current Taxon” button for one of the related taxa. This will swap the current taxon for this one and change the view to be looking from the other list's perspective.

If you have permission (i.e. higher than “read only”) you will also be able to edit the cross-map. You can remove a relationship by clicking the “Remove Relationship” button or change its type by selecting a different relationship from the drop-down menu below the current relationship and clicking the “Change Relationship” button.

You can also add new relationships by clicking the “Add Relationship With New Taxon” link. This link will pop-up a taxon search window (just like the earlier pop-up window) which allows you to search for a taxon to relate to. Alongside the search results is a drop-down for you to select the type of new relationship and clicking the “Add Relationship” button will add the relationship and then close the pop-up, taking you back to an updated view of the taxon relationships.



If you would like to see the complete cross-map in XML format simply click the “XML format” button in the top right-hand corner of the screen. This will give you the raw XML cross-map. To return to Litchi simply click the “Back” button in your browser.

10. Managing Rules

This page displays all the rules that are currently in the system including their name, description, class name and priority. The class name is how the rules are referred to in the relations display.

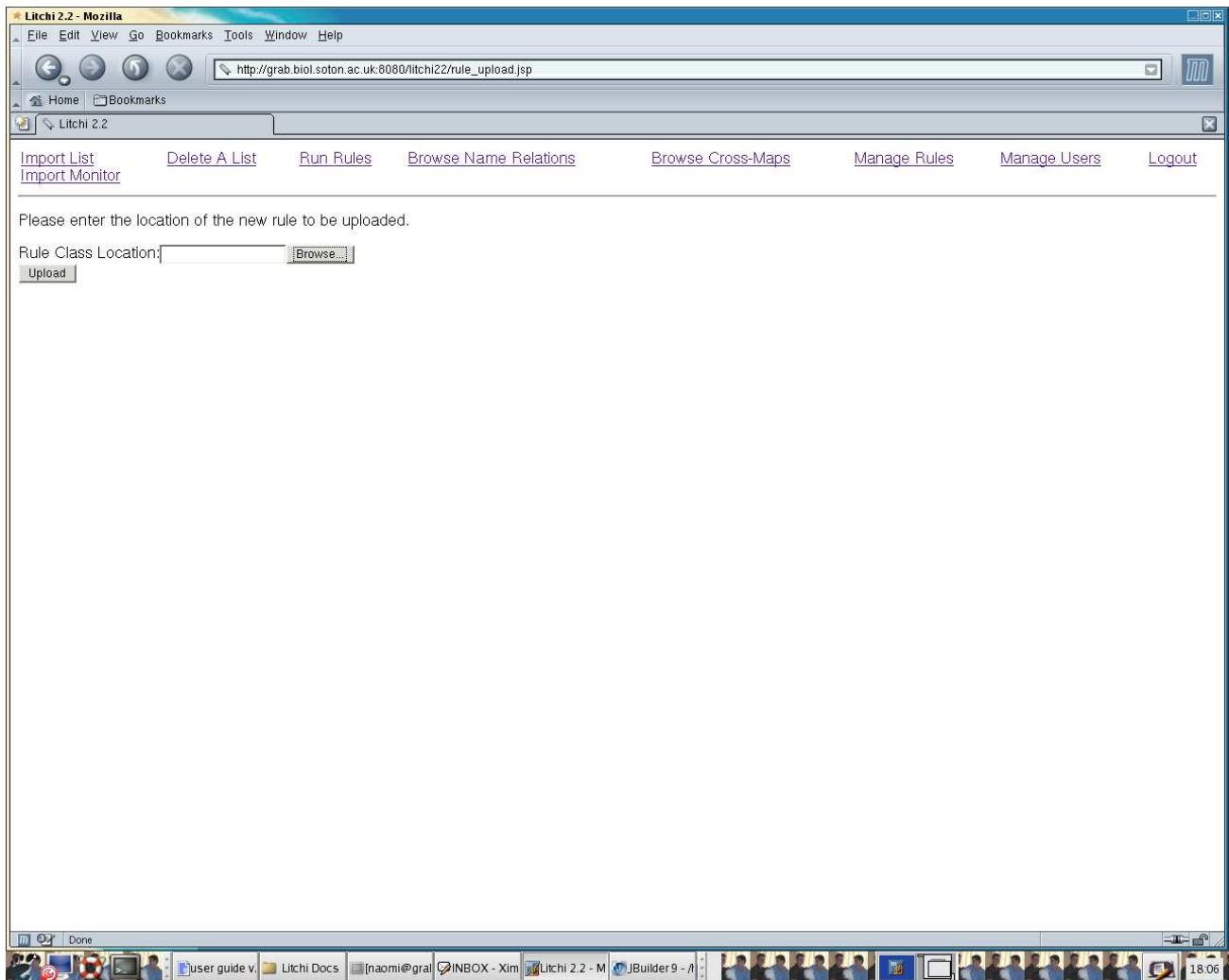
These are the rules that currently imported into the Litchi system.

Rule Name	Description	Class Name	Priority	
Accepted & Synonym (non-pp)	A full name, which is not pro-parte, cannot appear both as an accepted name and a synonym.	C1	1	Delete
Accepted Names	A full name cannot appear more than once as an accepted name.	C2	1	Delete
Synonym matches (non-pp)	A full name, which is not a pro-parte name, cannot be a synonym of more than one taxon.	C3	1	Delete
Acc Name & Synonym: Same Latin, Different Authorities	A full name with the same Latin components but different authorities, which is not a homonym or misapplied name, cannot appear both as an accepted name and as a synonym.	C4	1	Delete
Acc Names: Same Latin, Different Authorities	A full name with the same Latin components but different authorities, which is not a homonym, cannot appear as an accepted name of different taxa.	C5	1	Delete
Synonyms: Same Latin, Different Authorities	A full name with the same Latin components but different authorities, which is not a homonym or misapplied name, cannot appear more than once as a synonym.	C6	1	Delete
Matching Full Name	Finds matching full names between two lists.	T1	1	Delete
Matching Latin Components	Finds matching latin components of names between two lists.	T4	1	Delete
Autonym & Species (authors don't match)	Finds an autonym and its matching species between two lists whose authorities do not match.	T10	2	Delete
Autonym & Species (authors match)	Finds an autonym and its matching species between two lists whose authorities match.	T9	2	Delete
Authority & Bas. Authority	The species epithet and the authority of a full name in one taxon cannot be the same as the species epithet and basionym authority of a full name in another taxon.	C7	5	Delete
Bas. Authorities	The species epithet and basionym authority of a name cannot be the same as the species epithet and basionym authority of another name either in the same or in a distinct taxon.	C8	5	Delete

[Upload A New Rule](#)

Each rule can be deleted from this page, by pressing the "Delete" button alongside the rule. Deleting a rule permanently removes the rule class file from the underlying file system and removes any references to that rule from the database. Therefore, any relationships that were found by this rule will also be deleted.

There is a link at the bottom of this page which takes you to the "Rule Upload" screen. This allows you to introduce a new rule into the Litchi system by uploading a file from their local system. The new rule must be a Java class file that extends the Litchi class '*org.sp2000europa.litchi2.rules.Rule*'. An overview of how to write new rules is contained within the "Developer's Guide" document.

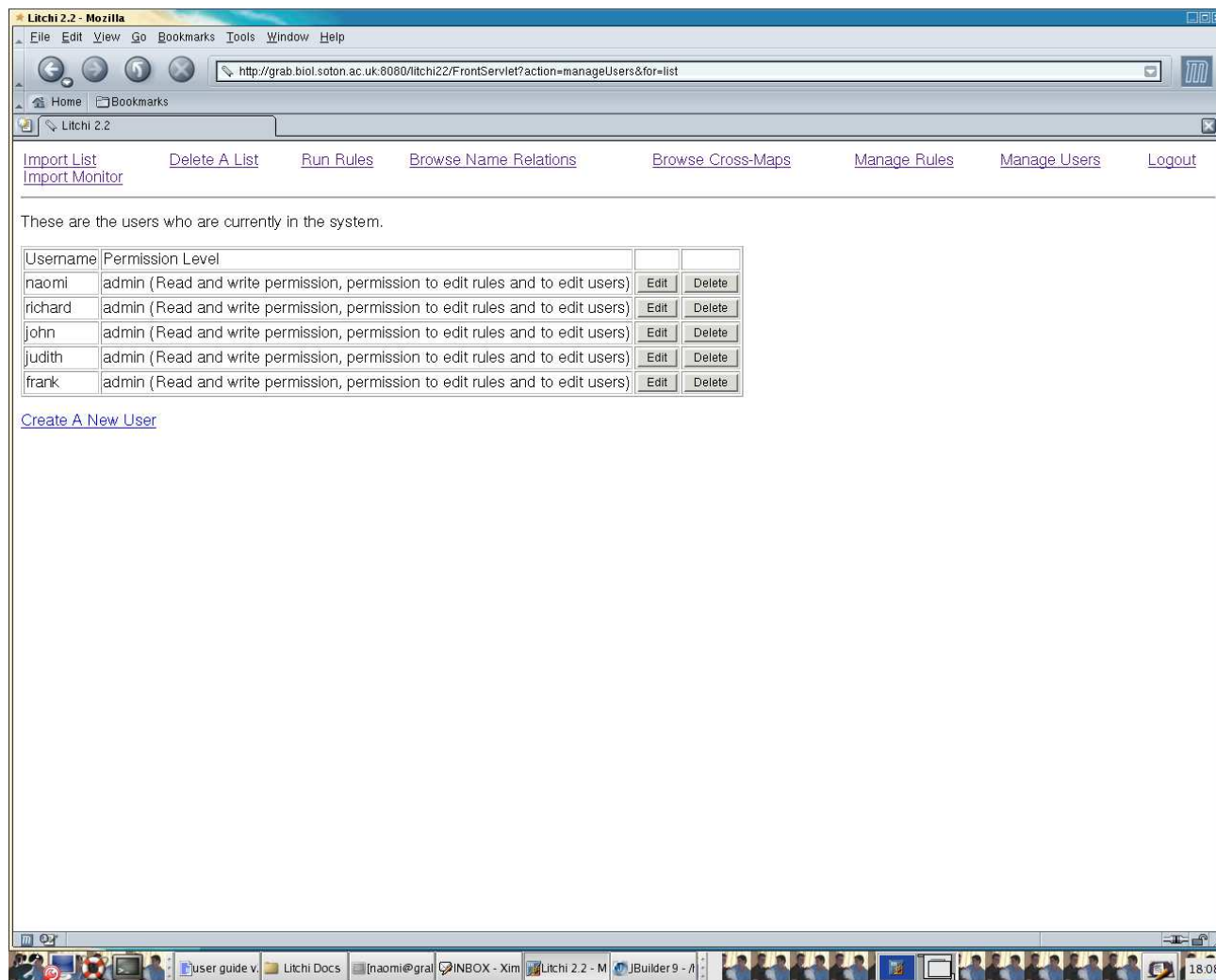


This page will only accept files if they are of type "class" - i.e. have a ".class" extension. It will also not accept files that have the same name as an existing rule. If any such conditions are detected or if any errors occur while the rule is being uploaded you will be informed and asked to try again.

Note that while any user can browse the rules, only users with a certain level of permissions ("Administrator" and "Rules" levels) can delete and upload rules.

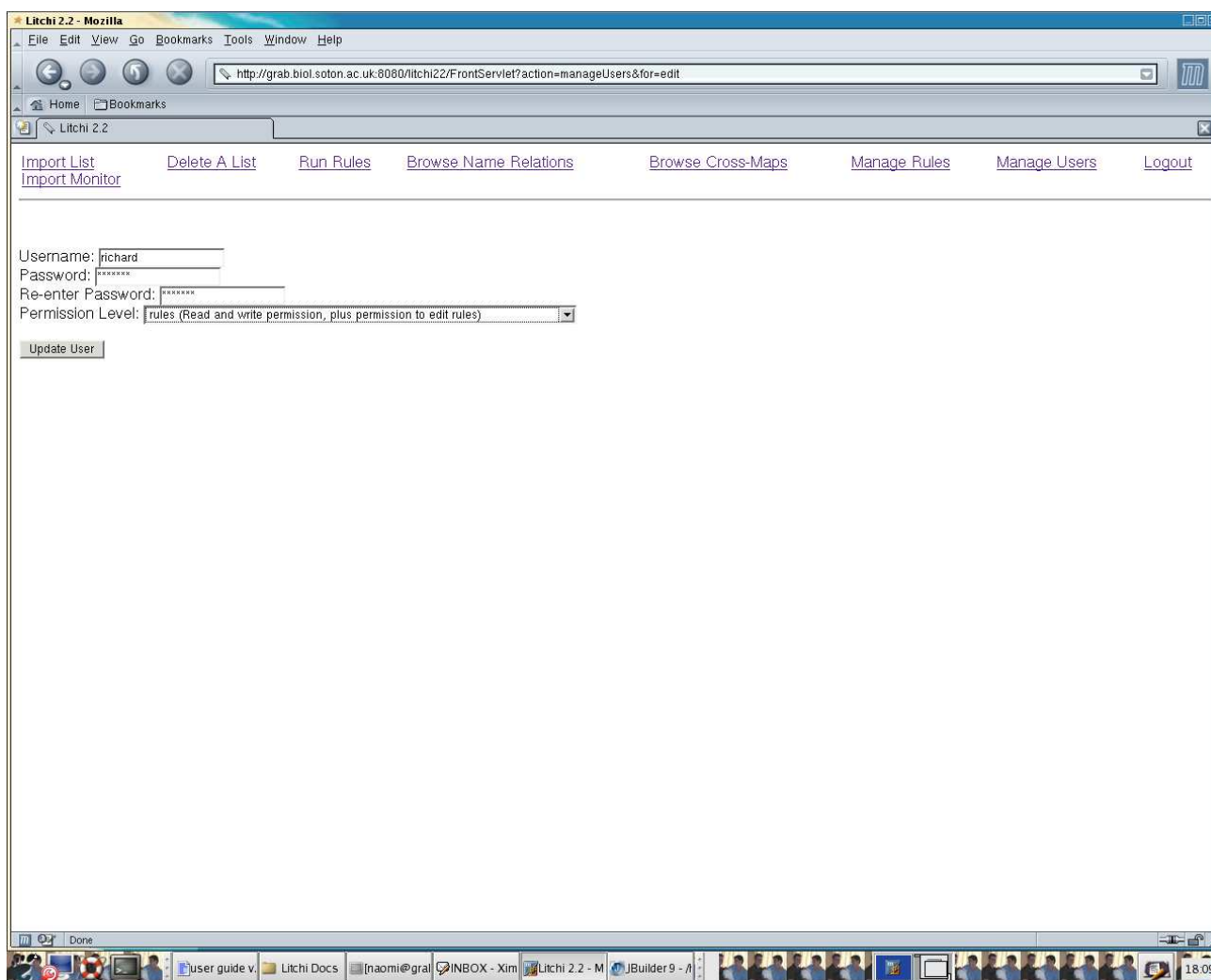
11. Managing Users

Clicking on this link takes you to a listing of all the users that currently have access to the Litchi system along with their permission level. Each user can be deleted or updated from this screen.



When deleting a user you cannot delete yourself. This is simply to ensure that at least one user is always present in the system.

When editing a user's information you must enter the password twice to ensure it was correctly entered.



At the bottom of the screen there is a link to create a new user, which is a very similar screen to when editing an existing user. You cannot create a user whose name already exists in the database.

After any edit, create or delete you will be returned to the initial listing of users to see the affect of your changes.

Note that only users with the highest permission level ("Administrator") will be able to access this area.

12. Logging Out

This will end the session and you will have to login again to access the system. If an import was in progress then it will continue after you have logged out.